

ABSTRACT

A method and a plasma system are provided for anisotropically etching structures into a substrate positioned in an etching chamber, e.g., structures defined using an etching mask in a silicon substrate, using a plasma. For this purpose, the etching chamber is supplied at least intermittently with an etching gas and at least intermittently with a passivation gas, the passivation gas being supplied to the etching chamber in cycles having a time period between 0.05 second and 1 second. In the plasma system, in addition to a plasma source, via which the plasma acting on the substrate may be produced, an arrangement is provided for at least temporary supply of the etching gas and at least temporary supply of the passivation gas to the etching chamber, which arrangement is designed in such a way that the passivation gas may be supplied to the etching chamber in cycles having a time period between 0.05 second and 1 second.